

CLAIMS

What is claimed is:

1. A method of preventing epidermal melanocyte cell loss due to injury in a vertebrate comprising inhibiting apoptosis in epidermal melanocytes.
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2. A method of Claim 1 comprising contacting epidermal melanocytes with a substance, in an amount sufficient to inhibit cell loss, which binds to p75 nerve growth factor receptor expressed on the surface of the melanocytes.
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3. The method of Claim 2 wherein the substance is nerve growth factor, a biologically active fragment thereof or the ligand is a nerve growth factor pseudo-ligand that binds to the p75 nerve growth factor receptors.
- 15 4. A method according to Claim 3 wherein the pseudo-ligand is a peptide comprising the amino acid sequence lysine-glycine-alanine.
5. A method according to claim 3 where in the peptide is selected from the group consisting of SEQ ID NO: 4, 9 and 10.
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6. A method of inducing hair growth in a vertebrate comprising inhibiting apoptosis in epidermal keratinocytes.
7. A method of Claim 6 comprising contacting epidermal keratinocytes with a substance, in an amount sufficient to inhibit cell loss, which binds to p75
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nerve growth factor receptor expressed on the surface of the keratinocytes

8. The method of Claim 7 wherein the substance is nerve growth factor, a biologically active fragment thereof or the pseudo-ligand is a nerve growth factor pseudo-ligand that binds to the p75 nerve growth factor receptors.
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9. A method according to Claim 8 wherein the pseudo-ligand is a peptide comprising the amino acid sequence lysine-glycine-alanine.
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10. A method according to claim 9 where in the peptide is selected from the group consisting of SEQ ID NO:4, 9 and 10.
11. A method of inducing hair color in a vertebrate comprising inhibiting apoptosis in epidermal melanocytes.
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12. A method of Claim 11 comprising contacting epidermal melanocytes with a substance, in an amount sufficient to inhibit cell loss, which binds to p75 nerve growth factor receptor expressed on the surface of the melanocytes.
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13. The method of Claim 12 wherein the substance is nerve growth factor, a biologically active fragment thereof or the pseudo-ligand is a nerve growth factor pseudo-ligand that binds to the p75 nerve growth factor receptors.
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14. A method according to Claim 13 wherein the pseudo-ligand is a peptide comprising the amino acid sequence lysine-glycine-alanine.
- 5 15. A method according to Claim 14 where in the peptide is selected from the group consisting of SEQ ID NO:4, 9 and 10.
- 10 16. A method of maintaining hair color in a vertebrate comprising contacting epidermal melanocytes with a substance, in an amount sufficient to maintain hair color, which binds to p75 nerve growth factor receptor expressed on the surface of the melanocytes.
- 15 17. The method of Claim 16 wherein the substance is nerve growth factor, a biologically active fragment thereof the pseudo-ligand is a nerve growth factor pseudo-pseudo-ligand that binds to the p75 nerve growth factor receptor.
18. A method according to Claim 17 wherein the pseudo-ligand is a peptide comprising the amino acid sequence lysine-glycine-alanine.
- 20 19. A method according to claim 18 where in the peptide is selected from the group consisting of SEQ ID NO:4, 9 and 10.
- 20 20. A method of inducing skin color in a vertebrate comprising inhibiting apoptosis in epidermal melanocytes.
- 25 21. A method of Claim 20 comprising contacting epidermal melanocytes with a substance, in an amount sufficient

to inhibit cell loss, which binds to p75 nerve growth factor receptor expressed on the surface of the melanocytes.

- 5 22. The method of Claim 21 wherein the substance is nerve growth factor, a biologically active fragment thereof or the pseudo-ligand is a nerve growth factor pseudo-pseudo-ligand that binds to the p75 nerve growth factor receptors.
- 10 23. A method according to Claim 22 wherein the pseudo-ligand is a peptide comprising the amino acid sequence lysine-glycine-alanine.
24. A method according to claim 23 where in the peptide is selected from the group consisting of SEQ ID NO:4, 9 and 10.
- 15 25. A method of maintaining skin color in a vertebrate comprising contacting epidermal melanocytes with a substance, in an amount sufficient to maintain skin color, which binds to p75 nerve growth factor receptor expressed on the surface of the melanocytes.
- 20 26. The method of Claim 25 wherein the substance is nerve growth factor, a biologically active fragment thereof or the pseudo-ligand is a nerve growth factor pseudo-pseudo-ligand that binds to the p75 nerve growth factor receptors.
- 25 27. A method according to Claim 26 wherein the pseudo-ligand is a peptide comprising the amino acid sequence lysine-glycine-alanine.

28. A method according to claim 27 where in the peptide is selected from the group consisting of SEQ ID NO: 4, 9 and 10.
29. A method of inhibiting vertebrate epidermal melanocyte or keratinocyte cell loss comprising inhibiting p75 nerve growth factor receptor-mediated apoptosis in the melanocyte or keratinocyte by contacting the melanocyte or keratinocyte with a pseudo-ligand, in an amount sufficient to inhibit cell loss, that binds to a melanocyte or keratinocyte p75 nerve growth factor receptor, thereby inhibiting apoptosis and preventing cell loss.
30. A method of Claim 29 wherein the pseudo-ligand is nerve growth factor, or a biologically active fragment thereof, or the pseudo-ligand is a nerve growth factor pseudo-pseudo-ligand that binds to the p75 nerve growth factor receptor.
31. A method of Claim 30 wherein the pseudo-ligand is a peptide comprising the amino acid sequence lysine-glycine- alanine.
32. A method according to Claim 31 wherein the peptide is selected from the group consisting of SEQ ID NO: 4, 9 and 10.
33. A method of maintaining hair growth in a vertebrate comprising inhibiting p75 nerve growth factor receptor-mediated apoptosis in keratinocytes by contacting the keratinocyte with a pseudo-ligand that binds to a keratinocyte p75 nerve growth factor

receptor, thereby inhibiting apoptosis, and inducing hair growth.

34. The method of Claim 33 wherein the pseudo-ligand is nerve growth factor, or a biologically active fragment thereof, wherein the fragment is a nerve growth factor peptide, or the pseudo-ligand is a nerve growth factor pseudo-pseudo-ligand that binds to the p75 nerve growth factor receptor.
35. A method of Claim 34 wherein the pseudo-ligand is a peptide comprising the amino acid sequence lysine-glycine- alanine.
36. A method according to Claim 35 wherein the peptide is selected from the group consisting of SEQ ID NO:4, 9 and 10.
37. A method of maintaining hair color in a vertebrate comprising inhibiting p75 nerve growth factor receptor-mediated apoptosis in melanocytes by contacting the melanocyte with a pseudo-ligand, in an amount sufficient to inhibit apoptosis, that binds to a melanocyte p75 nerve growth factor receptor, thereby inhibiting apoptosis and maintaining hair color.
38. A method of Claim 37 wherein the pseudo-ligand is nerve growth factor, or a biologically active fragment thereof, or the pseudo-ligand is a nerve growth factor pseudo-pseudo-ligand that binds to the p75 nerve growth factor receptor.

39. A method of Claim 38 wherein the pseudo-ligand is a peptide comprising the amino acid sequence lysine-glycine- alanine.
- 5 40. A method according to Claim 38 wherein the peptide is selected from the group consisting of SEQ ID NO:4, 9 and 10.
- 10 41. A method of maintaining skin color in a vertebrate comprising inhibiting p75 nerve growth factor receptor-mediated apoptosis in melanocytes by contacting the melanocyte with a pseudo-ligand, in an amount sufficient to inhibit apoptosis, that binds to a melanocyte p75 nerve growth factor receptor, thereby inhibiting apoptosis and maintaining skin color.
- 15 42. A method of Claim 41 wherein the pseudo-ligand is nerve growth factor, or a biologically active fragment thereof, or the pseudo-ligand is a nerve growth factor pseudo-pseudo-ligand that binds to the p75 nerve growth factor receptor.
- 20 43. A method of Claim 42 wherein the pseudo-ligand is a peptide comprising the amino acid sequence lysine-glycine- alanine.
44. A method according to Claim 43 wherein the peptide is selected from the group consisting of SEQ ID NO:4, 9 and 10.
- 25 45. A method of treating alopecia areata in a vertebrate comprising maintaining hair growth in the vertebrate comprising inhibiting p75 nerve growth factor receptor-mediated apoptosis in keratinocytes by

contacting the keratinocyte with a pseudo-ligand, in an amount sufficient to inhibit apoptosis, that binds to a keratinocyte p75 nerve growth factor receptor, thereby inhibiting apoptosis, and maintaining hair growth.

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46. The method of Claim 45 wherein the pseudo-ligand is nerve growth factor, or a biologically active fragment thereof, or the pseudo-ligand is a nerve growth factor pseudo-pseudo-ligand that binds to the p75 nerve growth factor receptor.

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47. A method of Claim 46 wherein the pseudo-ligand is a peptide comprising the amino acid sequence lysine-glycine- alanine.

48. A method according to Claim 47 wherein the peptide is selected from the group consisting of SEQ ID NO:4, 9 and 10.

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49. A method of treating male pattern baldness comprising maintaining hair growth in the male comprising inhibiting p75 nerve growth factor receptor-mediated apoptosis in keratinocytes by contacting the keratinocyte with a pseudo-ligand, in an amount sufficient to inhibit apoptosis, that binds to a keratinocyte p75 nerve growth factor receptor, thereby inhibiting apoptosis, and maintaining hair growth.

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50. The method of Claim 49 wherein the pseudo-ligand is nerve growth factor, or a biologically active fragment thereof, or the pseudo-ligand is a nerve growth factor

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pseudo-pseudo-ligand that binds to the p75 nerve growth factor receptor.

51. A method of Claim 50 wherein the pseudo-ligand is a peptide comprising the amino acid sequence lysine-glycine- alanine.
52. A method according to Claim 51 wherein the peptide is selected from the group consisting of SEQ ID NO:4, 9 and 10.